

Curriculum Vitae - Wytse Oortwijn

September 2017

1 General Information

Title : MSc.
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First name : Wytse
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1.1 Affiliation

University of Twente
Formal Methods and Tools
P.O.-box 217, Zilverling
7500 AE Enschede,
The Netherlands

2 Research Interests

Verification logics, theorem proving, model checking, and techniques for static analysis; for the analysis of (high-level) concurrent, parallel, and distributed software.

Particular interests in developing abstraction techniques and program logics for the verification of concurrent and distributed software (e.g. message passing), and automated verification tools to support this.

3 Education

- **Aug 2015 - present:** *PhD in Computer Science* at University of Twente, Enschede, the Netherlands, under supervision of Prof. Dr. Marieke Huisman.
 - *Main subjects:* program abstractions and program logics for verifying concurrent and distributed software.
- **Sept 2012 - Jul 2015:** *MSc in Computer Science* at University of Twente, Enschede, the Netherlands, under supervision of Prof. Dr. Jaco van de Pol.
 - *Title of thesis:* Distributed Symbolic Reachability Analysis (subjects are: symbolic model checking, high-performance computing, and distributed computing).
 - *Grade:* 9, with *Honours* distinction.
 - Participated in the Masters' Honours Research programme, 2015.
 - Participated in the Twente Graduate School (TGS) Awards, 2015.
- **Sept 2009 - Jun 2012:** *BSc. in Computer Science* at Windesheim, University of Applied Sciences, Zwolle, the Netherlands.
 - *Title of thesis:* Project Digitaak (Digitaak is an electronic learning environment, built as an “app” for tablet- and touchscreen devices).
 - *Grade:* 8.5, with *Cum Laude* distinction.

4 Certificates

- **Nov 2009:** *ITIL Foundation* certificate for service management.
- **Jul 2009:** *PRINCE2 Foundation* certificate for projectmanagement.
- **Jun 2008:** Proficiency in *Windows Server 2003*, *Microsoft Exchange*, and *Microsoft ISA*, given by Daxis Computer Systems.

5 Working Experience

- **Aug 2015 - present:** *PhD Candidate* at the University of Twente, Enschede, the Netherlands, in the Formal Methods and Tools research group. Expected graduation date: in August 2019.
- **Apr 2014 - Jul 2015:** *Leading Software Developer* at Plazio, Nijverdal, the Netherlands. Activities: designing, developing, and maintaining a large-scale web-based news platform (in PHP).
- **Jul 2011 - Feb 2014:** *Software Developer and Web Developer* at Daxis Computer Systems, Deventer, the Netherlands. Activities: designing and implementing several web-applications and desktop applications using PHP and C#.

- **Jun 2008 - Jul 2011:** *Software Developer* at EG Computer Specialisten, Lemelerveld, the Netherlands. Activities: designing and implementing several web-applications and desktop applications using PHP and C#.

6 Internships

- **Feb 2012 - Jun 2012:** *Software Developer (BSc. graduation project)*, at Daxis Computer Systems, Deventer, the Netherlands. Activities: designing and developing an *App* using C# for use in primary education. Grade: 9.
- **Feb 2008 - Jun 2009:** *Web Developer*, at Daxis Computer Systems, Deventer, the Netherlands. Activities: Designing and programming several web-applications using C# and ASP.NET. Grade: 9.
- **Sept 2007 - Dec 2007:** *Software Developer*, at Romar Trading, Oranjestad, Aruba. Activities: Development of a webshop, a stocking administration system, and a 3D application used for presentational purposes.
- **Apr 2007 - Jul 2007:** *Web Developer*, at Landstede, Raalte, the Netherlands. Activities: Designing and implementing a web-application (content management) to connect and present information of several departments of Landstede.

7 Conference Publications

- Stefan Blom, Saeed Darabi, Marieke Huisman, and Wytse Oortwijn. *The VerCors Tool Set: Verification of Parallel and Concurrent Software*. In integrated Formal Methods (iFM), September 2017.
- Wytse Oortwijn, Stefan Blom, Dilian Gurov, Marieke Huisman, and Marina Zaharieva-Stojanovski. *An Abstraction Technique for Describing Concurrent Program Behaviour*. In the 9th Conference on Verified Software: Theories, Tools, and Experiments (VSTTE), July 2017.
- Wytse Oortwijn, Tom van Dijk, and Jaco van de Pol. *Distributed Binary Decision Diagrams for Symbolic Reachability*. In the 24th International SPIN Symposium on Model Checking of Software (SPIN), July 2017. **Best Paper Award**.
- Wytse Oortwijn and Marieke Huisman. *Model-based Verification of Distributed Software*. In SEN symposium, February 2017.
- Wytse Oortwijn, Stefan Blom, and Marieke Huisman. *Future-based Static Analysis of Message Passing Programs*. In Programming Language Approaches to Concurrency- and Communication-centric Software (PLACES), April 2016.
- Wytse Oortwijn, Stefan Blom, and Marieke Huisman. *Static Verification of Message Passing Programs*. In ICTOpen, March 2016. **Best IPA Poster Award**.

- Wytse Oortwijn, Tom van Dijk, and Jaco van de Pol. *A Distributed Hash Table for Shared Memory*. In the 11th International Conference on Parallel Processing and Applied Mathematics (PPAM), September 2015.

8 Presentations and Talks

- *An Abstraction Technique for Describing Concurrent Program Behaviour*. At VSTTE, Heidelberg, Germany, on July 2017.
- *The VerCors Toolset: Verifying Parallel, Concurrent, and Distributed Software*. Lunchmeeting presentation at Delft University, the Netherlands, June 2017.
- *Verifying Concurrent and Distributed Software*. At the SEN Symposium, CWI Amsterdam, the Netherlands, on January 2017.
- *Verifying Concurrent Software*. Lunchmeeting presentation at the Formal Methods and Tools research group, University of Twente, the Netherlands, on December 2016.
- *Distributed Binary Decision Diagrams for Symbolic Reachability*. At the Dutch Model Checking Day (DMCD), University of Twente, on July 2016.
- *Static Analysis of Message Passing Programs*. At Dagstuhl seminar 16201, Wadern, Germany, on May 2016.
- *Future-based Static Analysis of Message Passing Programs*. At the PLACES workshop, Eindhoven University, the Netherlands, on April 2016.
- *Static Verification of Message Passing Programs*. At ICT.Open, Amersfoort, the Netherlands, on March 2016. **Best IPA Poster Presentation Award**.
- *Distributed Binary Decision Diagrams for Symbolic Reachability*. At the IPA Fall Days, Herten-Roermond, the Netherlands, on November 2015.
- *A Distributed Hash Table for Shared Memory*. At the PPAM 2015 conference, Krakow, Poland, on September 2015.
- *Distributed Symbolic Reachability Analysis*. Lunchmeeting presentation at the Formal Methods and Tools research group, University of Twente, the Netherlands, on July 2015.

9 Student Supervision

I helped with the supervision of the following students:

- Janina Torbecke. *Symbolic Model Checking with Partitioned BDDs in Distributed Systems*. Master's thesis, September 2017.

- Jelte Zeilstra. *A logic to reason about distributed programs*. Master's thesis, November 2016.
- Willem Siers. *Correct and Efficient Concurrent Hash Tables in Java*. Bachelor's thesis, July 2016.

10 Software Developed

- *VerCors Verification Toolset* (2016 - ongoing). Working on maintaining, extending, and refactoring the VerCors verification toolset, developed at the University of Twente by the research group of Prof. Dr. Marieke Huisman. VerCors is a toolset for verifying parallel and concurrent software, written in Java, C, OpenMP, or OpenCL. VerCors itself is written in Java and Scala.
- *DistDD* (2015-2016). I designed and developed DistDD, a distributed symbolic reachability analysis implementation for high-performance networks of multi-core machines. Written in C.
- *AppTools* (2014-2016): I designed and implemented AppTools, a central platform that allows to instantiate and manage news publishing websites at a central place. On August 2017 AppTools manages more than 20 news websites, used in several cities in the Netherlands (e.g. Nijverdal, Deventer, Maastricht, Arnhem, Utrecht and Nijmegen), with over 28.000 news articles combined. Written in PHP.
- *Digitaak* (2012): I developed Digitaak, an electronic learning environment for use in primary education, designed for tablets. Written in C#.
- *EGCS Square* (2010-2011): I developed Square, a management system for tracking hardware components for the hardware store EG Computer Specialisten. Square was used for several years to manage: hardware inventories, sales, warranties, and invoices. Written in C#.

11 Languages

- **Dutch:** Native speaker.
- **English:** Highly proficient in spoken and written English.

12 Other Interests and Activities

- My current hobbies include: climbing and bouldering (both indoor and outdoor), jogging, dancing Lindy Hop, reading, and playing various board games.
- I practised judo for over eight years at various associations.